

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L3	155	(DNA or nucleotide)adj5 sequence same (carotene or carotenoid)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2005/02/02 18:04
L4	9	I3 and (transform? or transgene) and methylomonas	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2005/02/02 18:05

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(FILE 'HOME' ENTERED AT 16:17:59 ON 02 FEB 2005)

FILE 'CAPLUS, SCISEARCH, BIOSIS' ENTERED AT 16:18:27 ON 02 FEB 2005

L1 18511 FILE CAPLUS  
L2 10905 FILE SCISEARCH  
L3 10663 FILE BIOSIS  
TOTAL FOR ALL FILES  
L4 40079 S BETA (5A) (CAROTENE OR CAROTENOID)  
L5 680 FILE CAPLUS  
L6 632 FILE SCISEARCH  
L7 511 FILE BIOSIS  
TOTAL FOR ALL FILES  
L8 1823 S L4 AND (DNA OR NUCLEOTIDE OR NUCLEIC ACIDS)  
L9 12 FILE CAPLUS  
L10 0 FILE SCISEARCH  
L11 0 FILE BIOSIS  
TOTAL FOR ALL FILES  
L12 12 S L8 AND METHYLOMONAS  
L13 1 FILE CAPLUS  
L14 0 FILE SCISEARCH  
L15 0 FILE BIOSIS  
TOTAL FOR ALL FILES  
L16 1 S L12 AND (TRANSFORM OR TRANSGENE)  
L17 7 FILE CAPLUS  
L18 0 FILE SCISEARCH  
L19 0 FILE BIOSIS  
TOTAL FOR ALL FILES  
L20 7 S L12 AND (TRANSFORM? OR TRANSGENE?)  
SAV CHENG979/A L20

=> d ibib abs 1-7 l20

L20 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2004:1081995 CAPLUS  
DOCUMENT NUMBER: 142:50293  
TITLE: Gene cluster encoding carotenoid biosynthetic enzymes  
from Pantoea agglomerans  
INVENTOR(S): Cheng, Qiong; Sedkova, Natalia; Tao, Luan  
PATENT ASSIGNEE(S): USA  
SOURCE: U.S. Pat. Appl. Publ., 49 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 4  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004253663	A1	20041216	US 2004-808807	20040324
PRIORITY APPLN. INFO.:			US 2003-477874P	P 20030612
			US 2003-527083P	P 20031203

AB A unique carotenogenic biosynthetic gene cluster was isolated from Pantoea agglomerans strain DC404, wherein the genetic organization of the cluster is crtE-idi-crtY-crtI-crtB-crtZ. The genes contained within this cluster encode geranylgeranyl pyrophosphate (GGPP) synthetase (CrtE), isopentenyl pyrophosphate isomerase (Idi), lycopene cyclase (CrtY), phytoene desaturase (CrtI), phytoene synthase (CrtB), and  $\beta$ -carotene hydroxylase (CrtZ). The gene cluster, genes and their

products are useful for the conversion of farnesyl pyrophosphate to carotenoids. Vectors containing those **DNA** segments, host cells containing the vectors, and methods for producing those enzymes by recombinant **DNA** technol. in **transformed** host organisms are disclosed.

L20 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:964716 CAPLUS  
DOCUMENT NUMBER: 141:406790  
TITLE: Six carotenoid biosynthesis genes (CrtE, CrtX, CrtY, CrtI, CrtB and CrtZ) from *Pectobacterium cypripedii* and its recombinant expression for producing carotenoid compounds  
INVENTOR(S): Cheng, Qiong; Sedkova, Natalia; Tao, Luan  
PATENT ASSIGNEE(S): USA  
SOURCE: U.S. Pat. Appl. Publ., 48 pp., which  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 4  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004224383	A1	20041111	US 2004-804677	20040319
WO 2005001024	A2	20050106	WO 2004-US13989	20040504
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRIORITY APPLN. INFO.: US 2003-468596P P 20030507  
US 2003-527083P P 20031203

AB Genes have been isolated from *Pectobacterium cypripedii* encoding geranylgeranyl pyrophosphate (GGPP) synthase (CrtE), phytoene synthase (CrtB), phytoene desaturase (CrtI), lycopene cyclase (CrtY), **.beta** **-carotene** hydroxylase (CrtZ), and zeaxanthin glucosyl transferase (CrtX) activity. The genes and their products are useful for the conversion of farnesyl pyrophosphate to carotenoids. Vectors containing those **DNA** segments, host cells containing the vectors and methods for producing those enzymes by recombinant **DNA** technol. in **transformed** host organisms are disclosed.

L20 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:551001 CAPLUS  
DOCUMENT NUMBER: 141:101147  
TITLE: Construction of gene clusters in an expression host by homologous recombination of **DNA** introduced into a host by transduction  
INVENTOR(S): Rouviere, Pierre E.; Suh, Wonchul  
PATENT ASSIGNEE(S): E.I. Du Pont de Nemours and Company, USA  
SOURCE: PCT Int. Appl., 103 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent

LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004056972	A2	20040708	WO 2003-US41678	20031219
W: AU, CA, JP				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
US 2004209365	A1	20041021	US 2003-734778	20031212
PRIORITY APPLN. INFO.:			US 2002-434773P	P 20021219
AB The invention describes a method for the construction of gene clusters ("stacking of traits") in a recombination-capable host by introduction of foreign DNA using a transducing phage system is described. The method uses integrating cassettes that include a pair of flanking sites for site-specific recombination and a gene of interest with a selectable marker integrated into it by site-specific recombination and flanked by sites for site-specific recombination. The DNA is introduced into the host using a transducing phage. It then integrates into the host genome by homologous recombination using the flanking sequences. Integrants are then selected for using the selectable marker and the selectable marker is excised by site-specific excision from selected cells. After the first gene is introduced, a second and further genes can be introduced by further rounds of transduction, recombination, and selection. The method makes use of a nucleic acid integration cassette that has homol. to a specific site on a host chromosome for the insertion of genetic elements and the stacking of traits. Repetition of the method results in the stacking of traits on a single genetic element.				

L20 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:371066 CAPLUS

DOCUMENT NUMBER: 140:369956

TITLE: Natural promoters from *Methylobacter* genome for regulated gene expression in C1 metabolizing bacteria

INVENTOR(S): Dicosimo, Deana J.; Picataggio, Stephen K.; Seip, John E.; Ye, Rick W.; Wang, Tao; Ni, Hao

PATENT ASSIGNEE(S): E.I. Du Pont de Nemours and Company, USA

SOURCE: PCT Int. Appl., 83 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004037998	A2	20040506	WO 2003-US33698	20031021
WO 2004037998	A3	20040812		
W: CA, JP, NO				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
US 2004126848	A1	20040701	US 2003-689200	20031020
PRIORITY APPLN. INFO.:			US 2002-419872P	P 20021021
AB The invention relates to the use of promoter regions isolated from a <i>Methylobacter</i> sp. for gene expression and metabolic engineering in C1 metabolizing bacteria. Genes, ntrA, glnB, htpG, moxP and hps, have been identified in the <i>Methylobacter</i> genome that are responsive to various metabolic and growth conditions. The identified responsiveness				

of these genes allows for the use of their promoters in regulated gene expression in transgenic C1 metabolizing bacteria. In particular, the hps promoter, which in its native state drives the expression of 3-hexulose-6-phosphate synthase (HPS), was found to be useful for directing expression of heterologous coding regions (e.g., crtZ) in the obligate methanotroph *Methylobacter* sp. 16a.

L20 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:417887 CAPLUS  
 DOCUMENT NUMBER: 139:2054  
 TITLE: gene crtL and the production of asymmetric carotenoids  
 INVENTOR(S): Cheng, Qiong; Tao, Luan  
 PATENT ASSIGNEE(S): E. I. Du Pont de Nemours & Co., USA  
 SOURCE: PCT Int. Appl., 66 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003044205	A1	20030530	WO 2002-US37302	20021120
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2003143660	A1	20030731	US 2002-292577	20021112
EP 1446491	A1	20040818	EP 2002-780717	20021120
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
PRIORITY APPLN. INFO.:			US 2001-331830P	P 20011120
			WO 2002-US37302	W 20021120

AB Genes have been isolated from *Rhodococcus* and *Deinococcus* which encode a specific lycopene  $\beta$ -cyclase capable of converting acyclic **carotenoids** with at least one  $\psi$ -end group to the corresponding asym. carotenoid containing a single  $\beta$ -ionone ring end group. The genes are new. **Transformed** host cells expressing the present genes and methods for the bio-conversion of acyclic carotenoid substrates to corresponding asym. carotenoid are also provided. Thus the crtL gene from *Rhodococcus erythropolis* strain AN12 and *Deinococcus radiobacter* R1 which encodes a lycopene  $\beta$ -cyclase was isolated and characterized. Recombinant *Escherichia coli* strains already bearing the the crtEXIB operon were **transformed** with either a crtL or a crtY gene. Transformant containing the crtY gene produced  $\beta$ -**carotene** while those with the crtL gene produce  $\gamma$ -carotene.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:154580 CAPLUS  
 DOCUMENT NUMBER: 138:199995  
 TITLE: *Pantoea stewartii* genes encoding enzymes involved in carotenoid compound conversion from phytoene and use

thereof  
 INVENTOR(S): Brzostowicz, Patricia C.; Cheng, Qiong; Picataggio, Stephen K.; Rouviere, Pierre E.  
 PATENT ASSIGNEE(S): E. I. Du Pont de Nemours & Co., USA  
 SOURCE: PCT Int. Appl., 68 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003016503	A2	20030227	WO 2002-US26647	20020815
WO 2003016503	A3	20040930		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

US 2003148319 A1 20030807 US 2002-218118 20020813

PRIORITY APPLN. INFO.: US 2001-312646P P 20010815

AB Genes have been isolated from *Pantoea stewartii* encoding geranylgeranyl pyrophosphate (GGPP) synthase (crtE), phytoene synthase (crtB), phytoene desaturase (crtI), lycopene cyclase (crtY),  $\beta$ -carotene hydroxylase (crtZ), and zeaxanthin glucosyl transferase (crtX) activity. The genes and their products are useful for the conversion of phytoene to the carotenoids. Vectors containing those DNA segments, host cells containing the vectors and methods for producing those enzymes and  $\beta$ -carotene by recombinant DNA technol. in transformed host organisms are disclosed.

L20 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:172119 CAPLUS

DOCUMENT NUMBER: 136:231339

TITLE: Carotenoid production from a single carbon substrate

INVENTOR(S): Brzostowicz, Patricia C.; Cheng, Qiong; Dicosimo, Deana J.; Koffas, Mattheos; Miller, Edward S.; Odom, J. Martin; Picataggio, Stephen K.; Rouviere, Pierre E.

PATENT ASSIGNEE(S): E. I. Du Pont de Nemours & Co., USA

SOURCE: PCT Int. Appl., 156 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 4

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002018617	A2	20020307	WO 2001-US27420	20010904
WO 2002018617	A3	20030522		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,			

LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL,  
PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG,  
US, UZ, VN, YU, ZA, ZW  
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AM, AZ, BY, KG,  
KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR,  
IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN,  
GQ, GW, ML, MR, NE, SN, TD, TG  
US 2002142408 A1 20021003 US 2001-938956 20010824  
US 6818424 B2 20041116  
US 2003003528 A1 20030102 US 2001-941947 20010829  
CA 2417261 AA 20020307 CA 2001-2417261 20010904  
AU 2001088699 A5 20020313 AU 2001-88699 20010904  
EP 1328639 A2 20030723 EP 2001-968453 20010904  
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR  
NO 2003000343 A 20030403 NO 2003-343 20030123  
US 2004077068 A1 20040422 US 2003-363567 20030904  
US 2004063143 A1 20040401 US 2003-700003 20031103  
US 2004147011 A1 20040729 US 2003-701200 20031104  
PRIORITY APPLN. INFO.: US 2000-229858P P 20000901  
US 2000-229907P P 20000901  
US 2001-934868 A3 20010822  
US 2001-934903 A3 20010822  
WO 2001-US27420 W 20010904

AB A method for the production of carotenoid compds. is disclosed. The method  
relies on the use of microorganisms which metabolize single carbon  
substrates for the production of carotenoid compds. in high yields. Thus  
**Methylomonas** strain 16a was genetically enhanced to produce  
**beta.-carotene** and zeaxanthin from methane.

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